

Appl. No. 10/517,321
Amendment dated: February 6, 2007
Reply to OA of: October 6, 2006

Amendments to the drawings:

The attached sheets of drawings include changes to Figures 12, 13, 14 and 15.

Attachment: Replacement Sheets

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REMARKS

This is in response to the Official Action of October 6, 2006 in connection with the above-identified application. Applicants have amended the claims of the instant application in order to more precisely define the scope of the present invention, taking into consideration the outstanding Official Action.

Specifically, Applicants have amended claim 10 to recite a multiple piezoelectric crystal microbalance device comprising a connecting station for receiving and individually operating an array of piezoelectric crystal microbalances and a plurality of individually detachable piezoelectric crystal microbalance flow-through cells for engaging with the connecting station. Support for this amendment may be found throughout the specification as originally filed, including, e.g., page 11, lines 4-7. Applicants also note that additional minor formatting amendments have been made to claim 10.

Applicants respectfully submit that all claims now pending in the instant application are in full compliance with the requirements set forth in 35 U.S.C. §112 and are patentable over the references of record

Turning now to the objections and rejections set forth in the outstanding Official Action, the Official Action begins by objecting to Figures 12-15 in the instant application because these figures are missing axis labels. Accordingly, Applicants submit herewith corrected Figures 12-15, which have properly labeled axis according to the descriptions of Figure 12-15 set forth in the paragraph bridging pages 10 and 11 of the specification as originally filed. In light of the amendments to Figures 12-15, Applicants respectfully request that the objection to the drawings be withdrawn.

The Official Action next objects to claim 10 due to certain informalities. Specifically, the Official Action objects to claim 10 because of a comma following the term "(10)" in line 7. Accordingly, Applicants have amended claim 10 to delete the comma. Additionally, the Official Action objects to claim 10 because of the last paragraph of claim 10 should be moved to the preceding paragraph to indicate the fluid connecting ports and the electric connecting ports are part of the receptor connector portion. In response, Applicants have amended claim 10 such that both the paragraph reciting electric connecting ports and the paragraph reciting fluid connecting ports have

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the same indentation under the paragraph reciting the receptor connection portion. In light of these amendments to claim 10, Applicants respectfully request that the objection to claim 10 be withdrawn.

The rejection of claim 10 under 35 U.S.C. §102(b) as being anticipated by Kawakami et al. (US Pat. No. 5,728,583) in light of Luscher (US Pat. No. 3,585,527) has been carefully considered but is most respectfully traversed in light of the amendments to the claims and the following comments.

Applicants wish to direct the Examiner's attention to MPEP § 2131 which states that to anticipate a claim, the reference must teach every element of the claim.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

The Official Action urges that Kawakami discloses every element of the invention recited in claim 10, including a connecting panel 10 having cell connecting receptors 11a-11c, and each cell connecting receptor having a pair of electronic connecting ports 72 and 73 and a pair of fluid connecting ports 61a-61c and 62a-62c. However, Applicants respectfully submit that Kawakami fails to disclose individually detachable piezoelectric crystal microbalance flow-through cells as claimed in amended claim 10 and is therefore incapable of properly supporting a §102 rejection.

The individually detachable piezoelectric crystal microbalance flow-through cells recited in amended claim 10 are depicted most clearly in Figures 2 and 3 of the instant application. The flow-through cells 10 have a first half 14 and a second half 16 that combine to form a housing 12 that houses sensor crystal 50. As shown in Figure 8, the flow-through cells 10 are connected to the rack 112, and more specifically, are inserted into the cell connector receptors 118. What is especially notable about the flow-through cells is they each form their own individual housing that is separate and distinct from

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other flow-through cells and that each flow-through cell is therefore individually detachable from its cell connector receptor. As explained in further detail throughout the specification, this allows for the replacement of any flow-through cell without requiring removal of other flow-through cells or disassembly of the entire multiple piezoelectric crystal microbalance device.

To the contrary, Kawakami fails to disclose individually detachable piezoelectric crystal microbalance flow-through cells. As shown in, for example, Figure 3 of Kawakami, the plate shaped quartz oscillators 50a-50c are not housed in individual flow-through cells, but rather are placed directly on the lower member 10 and then have additional structural elements stacked on top. Unlike the flow-through cells claimed in the instant application, Kawakami fails to disclose a housing mechanism for each oscillator that encapsulates the oscillator. In Kawakami, the oscillators are placed directly into the circular pits 11a-11c and then the seal members 40a-40c, the outer seal member 30 and the upper member 20 are stacked on top of the oscillators and clamped together with metal clamp 90. No housing structure is provided for the oscillator that could be reasonably interpreted as a flow-through cell as the term is used in the claims of the instant application. Accordingly, because Kawakami discloses placing the oscillator directly into the circular pits and stacking components on top of the oscillators as opposed to a flow-through cell as claimed in the instant application, Applicants respectfully submit that Kawakami fails to properly establish a §102(b) rejection according to the guidelines set forth in MPEP §2131. It is therefore respectfully requested that the §102(b) rejection of claim 10 be withdrawn.

Furthermore, because Kawakami fails to disclose flow-through cells as recited in the claims of the instant application, Applicants also respectfully submit that Kawakami fails to disclose individually detachable flow-through cells. As discussed above, the flow-through cells recited in the claims of the instant application are each separate from the other flow-through cells and detachable from the connecting panel.

To the contrary, Kawakami fails to disclose individual and detachable flow-through cells. With respect to individual flow-through cells, Kawakami fails to disclose this feature because the components stacked on top of the oscillators as shown in Figure 3 do not form individual units. Rather, one component piece, e.g., the upper member

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20, covers three separate oscillators. Thus, it would be impossible for one to detach a single oscillator from the lower member 10 without also detaching other oscillators because the upper member 20 and upper seal member 30 are stacked on top of multiple oscillators. Attempting to remove one oscillator requires removing multiple oscillators given the configuration disclosed in Kawakami. With respect to detachable flow-through cells, Kawakami fails to disclose this feature of the claims because the only manner in which to detach the oscillators from the lower member is to disassemble the entire structure. While the clamp 90 could be unlocked in order to remove the oscillators, Kawakami still fails to disclose flow-through cells that can be detached from the lower member. In Kawakami, one would need to remove multiple layers one step at a time to reach the oscillators. Accordingly, Kawakami cannot be reasonably interpreted as disclosing detachable flow-through cells.

In light of the above comments, Applicants respectfully submit that Kawakami fails to disclose multiple features of the claimed invention and is therefore incapable of properly supporting a §102(b) rejection of claim 10 according to the guidelines set forth in MPEP §2131. Applicants therefore request that this rejection be withdrawn.

The rejection of claims 11-13 under 35 U.S.C. §103(a) as being unpatentable over Kawakami in view of Takeuchi et al. (US Pat. No. 6,326,563) and the rejection of claim 14 under 35 U.S.C. §103(a) as being unpatentable over Kawakami in view of Ricchio et al. (US Pat. No. 5,130,095) have each been carefully considered but are most respectfully traversed in light of the amendments to the claims and the following comments.

Applicants wish to direct the Examiner's attention to the basic requirements of a prima facie case of obviousness as set forth in the MPEP § 2143. This section states that to establish a prima facie case of obviousness, three basic criteria first must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

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The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Section 2143.03 states that all claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Applicants also most respectfully direct the Examiner's attention to MPEP § 2144.08 (page 2100-114) wherein it is stated that Office personnel should consider all rebuttal argument and evidence presented by applicant and the citation of In re Soni for error in not considering evidence presented in the specification.

Applicants note that claims 11-14 each depend from claim 10 and are therefore patentable over Kawakami for the same reasons as provided above with respect to the §102(b) rejection of claim 10. Furthermore, Applicants respectfully submit that neither Takeuchi nor Ricchio disclose or suggest those features of claim 10 which Kawakami fails to disclose. Accordingly, as none of the prior art references, either standing alone or when taken in combination, disclose or suggest each and every element of claim 10, Applicants respectfully submit that claim 10 remains patentable over the references of record. Thus, as claim 10 is patentable over the references of record, Applicants respectfully submit that all claims depending therefrom are also patentable over the references of record. Applicants therefore respectfully request that the §103(a) rejections of claims 11-14 be withdrawn.

The provisional obviousness-type double patenting rejection of claims 10, 12 and 13 as being unpatentable over claim 22 of co-pending Application No. 10/546,616 in view of Kawakami has been carefully considered but is most respectfully traversed in light of the following comments.

The Official Action urges that the co-pending application teaches a connecting panel having a cell connecting receptor, the cell connecting receptor comprising a pair of electric connecting ports and a pair of fluid connecting ports. However, Applicants

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respectfully submit that double patenting rejections are not supported by what is taught in the co-pending application or patent, but rather are supported by what is claimed by the co-pending application or patent. Thus, it is immaterial to the double patenting rejection what is disclosed in the co-pending application, and attention should be focused on what is recited in the claims cited in support of the double patenting rejection. In this case, the Official Action urges that the double patenting rejection is supported by claim 22 of the co-pending application. A careful inspection of claim 22 reveals that this claim does not disclose or suggest the invention recited in claims 10, 12 and 13 of the present invention, even when taking into consideration the teaching(s) of Kawakami. Claim 22 recites "A sensor arrangement for detecting or measuring an analyte in a medium, comprising a flow cell according to claim 14." Claim 14 recites the structure of the flow cell. Neither claim 22 nor claim 14 disclose or suggest each and every feature of claims 10, 12 and 13, and Kawakami fails to remedy the deficiencies of the co-pending application. Accordingly, Applicants respectfully request that the provisional obviousness-type double patenting rejection of claims 10, 12 and 13 over claim 22 of co-pending Application No. 10/546,616 and Kawakami be withdrawn.

With respect to the provisional obviousness-type double patenting rejection of claims 10, 12 and 13 as being unpatentable over claims 2-47 of co-pending Application No. 10/539,065 in view of Kawakami, Applicants respectfully request that this rejection be held in abeyance as neither the instant application nor the co-pending application has matured into a patent. Furthermore, Applicants note that the instant application is the previously filed of the two applications, and therefore note that this application should be allowed to issue once the only remaining issue in the instant application is the provisional obviousness-type double patenting rejection. Applicants silence with respect to the merits of this provisional obviousness-type double patenting rejection should in no way be interpreted as an implicit or express admission that claims 10, 12 and 13 are obvious over claims 2-47 of the co-pending application in view of Kawakami.


With respect to the provisional obviousness-type double patenting rejection over co-pending Application No. 10/539,065 in view of Kawakami, Applicants briefly note that the Official Action again appears to rely on what is taught by the co-pending application rather than what is claimed. Accordingly, if this double-patenting rejection is maintained in the next Official Action, Applicants respectfully request that the Official Action set

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forth which claims are relied upon as reciting the features claimed in the instant application.

In view of the above comments and further amendments to the specification, drawings and claims, favorable reconsideration and allowance of all the claims now present in the application are most respectfully requested.

Respectfully submitted,
BACON & THOMAS, PLLC

By: 
Scott A. Brairton
Registration No. 55,020

625 Slaters Lane, Fourth Floor
Alexandria, Virginia 22314
Phone: (703) 683-0500
Facsimile: (703) 683-1080

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